Barriers in Colorectal Cancer Screening and Interventions to increase uptake Among African Americans: A Comprehensive literature review

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Barriers in Colorectal Cancer Screening and Interventions to increase uptake Among African Americans: A Comprehensive literature review

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Abstract

Colorectal cancer (CRC) is a major cause of death in African Americans. Routine screening could significantly reduce CRC-related morbidity and mortality. Unfortunately, the screening rate among African Americans is lower and as a result, African Americans are more likely to die from colorectal cancer compared to their white counterparts. Mistrust, lack of knowledge about CRC and CRC screening, and lack of access to health care have been associated with low colorectal cancer screening among African Americans. The objective of this paper was to perform a comprehensive review of the literature to identify barriers strongly associated with low colorectal cancer screening and effective intervention strategies that aim to increase colorectal cancer screening uptake among African Americans.

Colorectal cancer (CRC) occurs when tumors form in the lining of the large intestine. The tumor typically begins as a noncancerous polyp. A polyp is a growth of tissue that develops on the lining of the colon or rectum that can become cancerous. Certain kinds of polyps, called adenomatous polyps or adenomas, are the most likely to become cancers, though fewer than 10% of adenomas progress to cancer (Kelloff et al., 2004). It is common in both men and women.

Colorectal cancer is the third most commonly diagnosed cancer and the second leading cause of cancer death in both men and women in the US, with about 141,210 new cases and 49,380 deaths expected in 2011(American Cancer Society, 2011). About 72% of cases arise in the colon and about 28% in the rectum. The National Cancer Institute estimates that more than 1.1 million Americans with a history of colorectal cancer were alive in January 2007. Some of these individuals were cancer-free, while others still had evidence of cancer and may have been undergoing treatment (American Cancer Society, 2011).

Colorectal cancer incidence and mortality rates are highest in African American men and women; incidence rates are 20% higher and mortality rates are about 45% higher than those in whites (American Cancer Society, 2011). Until 1980, colorectal cancer mortality rates were lower in African American men compared to their Caucasian counterparts and the same with women of both races. The significant progress in early detection and treatment of colorectal cancer among Caucasians has resulted to a steep decline in the mortality rates since the early 1980s that did not begin in African Americans until the late 1990s. As a result, the rates are significantly higher in African Americans; 44% higher than in whites in 2007 (Altekruse et al., 1975-2007).

The specific causes of CRC outcome inequalities in African Americans are not fully understood. Biological susceptibility, a high fat diets and red meats, increased likelihood of smoking, social and economic disparities, and low use of screening methods have been implicated as potential contributing causes (American Cancer Society, 2011). Particular attention has been paid to low adherence to screening guidelines among African Americans, and multiple studies demonstrate that African Americans are less likely to engage in CRC screening than non-African Americans (American Society for Gastrointestinal Endoscopy, 2014).

There are many modifiable and non-modifiable factors associated with the risk of colorectal cancer. Non-modifiable factors include; personal or family history of colorectal cancer or adenomatous polyps, a personal history of chronic inflammatory bowel disease and increase risk due to aging rises after age 50 years (American Cancer Society, 2011). The American Cancer Society and other organizations recommend that some people at increased risk for colorectal cancer because of these conditions begin screening at an earlier age. Modifiable risk factors that have been associated with an increased risk of colorectal cancer in epidemiologic studies include physical inactivity, obesity, and high consumption of red or processed meats, smoking, and moderate-to-heavy alcohol consumption.

People with parent, sibling, or offspring who has had colorectal cancer have 2 to 3 times the risk of developing the disease compared to individuals with no family history; if the relative was diagnosed at a young age or if there is more than one affected relative, risk increases to 3 to 6 times that of the general population (Butterworth et al., 2006). About 20% of all colorectal cancer patients have a close relative who was diagnosed with the disease (Lynch & de la Chapelle, 2003). About 5% of patients with colorectal cancer have a well-defined genetic syndrome that causes the disease. The most common of these is Lynch syndrome (also known as

hereditary nonpolyposis colorectal cancer), which accounts for 2% to 4% of all colorectal cancer cases. Familial adenomatous polyposis (FAP) is the second most common predisposing genetic syndrome; for these individuals, lifetime risk of colorectal cancer approaches 100% without intervention (Jasperson et al., 2010).

A recent study found that about one-quarter of colorectal cancer cases could be avoided by following a healthy lifestyle, i.e., maintaining a healthy abdominal weight, being physically active at least 30 minutes per day, eating a healthy diet, not smoking, and not drinking excessive amounts of alcohol (Kirkegaard et al., 2010).

Accumulating research suggests that aspirin-like drugs, postmenopausal hormones, and calcium supplements may help prevent colorectal cancer. Extensive evidence suggests that long-term, regular use of aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDS) is associated with lower risk of colorectal cancer (Flossmann & Rothwell, 2007). The American Cancer Society does not currently recommend use of these drugs for cancer prevention because of the potential side effects of gastrointestinal bleeding from aspirin and other traditional NSAIDs or of heart attacks from selective COX-2 inhibitors. However, people who are already taking NSAIDs for chronic arthritis or aspirin for heart disease prevention may have a lower risk of colorectal cancer as a side benefit (Flossmann & Rothwell, 2007).

Colorectal polyps and colorectal cancer are sometimes asymptomatic. Some of the symptoms may include but not limited to; blood in or on your stool (bowel movement), stomach pain, aches, or cramps that last longer, and weight loss due to unknown reasons. The United States Preventive Services Task Force (USPSTF) recommends several tests for the prevention or early detection of CRC among adults ages 50–75 years: 1) high-sensitivity FOBT annually, 2)

colonoscopy every 10 years, or 3) sigmoidoscopy every 5 years with FOBT every 3 years (USPSTF, 2008). The USPSTF gave CRC screening a grade "A" recommendation. This indicates CRC screening is highly beneficial in preventing colorectal cancer.

Colorectal cancer screenings among African Americans are fairly comparable to other racial groups, and they are less likely to follow screening guidelines compared to other groups (Cogbill, et al., 2014). Some studies attribute African American CRC screening adherence to low perceived risk of CRC, lack of knowledge, and fear. Research suggests that more exposure and access to information about CRC and screening would increase African American willingness to screen (Fyffe & Hudson et al., 2008).

Why are African Americans less likely to receive colorectal cancer screening? To help understand the reason behind the low CRC screening among African Americans and to explore interventions to increase screening, a comprehensive literature review was carried out using online databases to search for articles published between 2005 and 2015. Out of eighty nine articles found, six of the articles met the inclusion criteria. The inclusion criteria for the articles selected for this paper were: study participants must be 45 years or older, African Americans must constitute at least 35 % of study participants, at least 3 barriers must be identified in the study, and must describe intervention measures to increase screening. Three articles reviewed addressed barriers in colorectal cancer screening while the other three articles addressed intervention measures which aim to increase screening.

The first article confirmed that disparities exist in colorectal cancer screening in African Americans. The study in this article was designed by the Veterans Affairs (VA) health system to test whether patient and provider factors affect CRC screening after controlling for system-level

factors. Because access inequalities are minimized in the VA setting and given recent studies indicating fewer disparities in CRC treatment in VA settings, it is possible that CRC screening rates are equal among races in the VA population.

The aim of this study was to determine the rates of CRC screening and time to screening in African American and non-African American veterans in a large VA health care system database where there are no disparities in healthcare access and quality among any groups. The inclusion criteria for this study were: African American patients older than 45 years of age and non-African Americans older than 50 years of age. Data were extracted from the VA's electronic medical records. The participants were eligible for initial CRC screening between January 1996 and October 2012. Before January 2009, all subjects were considered screening-eligible after their 50th birthday (American Society for Gastrointestinal Endoscopy, 2014).

The researchers pointed out that overall screening rate of the 357 participants recruited in the study was 50 percent (American Society for Gastrointestinal Endoscopy, 2014). The adjusted rates for any each screening were lower among African Americans compared to non-African Americans (42 percent versus 58 percent). According to the article, colonoscopy screening uptakes among African Americans were also low compared to other groups (11 percent vs 23 percent). In addition to race, homelessness, lower service connectedness, taking more prescription drugs, and not seeing a primary care provider within two years of screening eligibility predicted lower uptake of screening. Time to colonoscopy screening was longer in African Americans.

The researchers of this study concluded that their analysis suggests that disparities in CRC screening between African Americans and non-African Americans exist in a large, urban VA

health care network (American Society for Gastrointestinal Endoscopy, 2014). The researchers noted that these differences in screening disparities exist in a patient population that has the same source and, presumably, access to health care.

According to the study findings, having established primary care at the time of screening eligibility plays a significant role in screening uptake (American Society for Gastrointestinal Endoscopy, 2014). The researchers also noted that as insurance coverage is extended to all Americans, it will be important to emphasize regular use of health care services in middle-aged adults and knowledge about the benefits of screening in order to increase CRC screening in African Americans and overall (American Society for Gastrointestinal Endoscopy, 2014).

The second article linked knowledge and beliefs, fewer perceived barriers, less fatalistic attitude, and awareness of screening to greater CRC screening. The article added that medical history and health care experience variables, having a regular doctor, having annual exams, having a doctor recommendation, and previous testing were all significantly associated with increased CRC screening (Shokar et al., 2008).

Knowledge, perceptions, and beliefs about CRC screening influence an individual's decision to undergo preventive screening (Torrence et al., 2008). Perceived fewer benefits to CRC screening is a common barrier to CRC screening especially among African Americans. African-Americans perceived fewer benefits to screening than their white counterparts (Shokar et al., 2008).

The second study was designed to assess the contribution of socio-demographic characteristics, knowledge, beliefs about CRC, and the health care experience with their primary care physician to racial/ethnic differences in CRC screening. The Participants were recruited from a University-based family medicine clinic in Southeast Texas during a 16-month period in

2004 and 2005. The clinic serves a diverse mix of racial/ethnic groups from both urban and semirural areas. The racial/ethnic distribution of patients over the age of 50 years is 66% non-Hispanic white, 24% African-American, and 10% Hispanic. Over 90% of the subjects were insured. The inclusion criteria include patients 50 to 80 years and of non-Hispanic white, African-American, or Hispanic race/ethnicity. The exclusion criteria were individuals with a history of CRC or high risk of CRC (familial adenomatous polyposis syndrome, hereditary nonpolyposis CRC, or ulcerative colitis).

A stratified sampling scheme, balanced by race/ethnicity; age ($<65, \geq 65$); and sex was instituted to increase the statistical power for comparisons across racial/ethnic groups and the older age group (Shokar et al., 2008). Patients were recruited under each stratum until the target number was obtained.

Variables were selected for this study if they had been correlated with CRC screening in previous studies or were found to be important in previous qualitative work in the same population and if they were relevant for the practice setting (Shokar et al., 2008). Items were designed to be culturally and linguistically appropriate. The final instrument consisted of items arranged into the following categories: (1) socio-demographic characteristics, (2) knowledge and beliefs about CRC and CRC screening, (3) medical history, and (4) health care experience variables. The outcome variable was self-reported history of CRC screening.

The outcome variable, Self-reported CRC screening, was assessed with validated items adapted from Vernon et al (Shokar et al., 2008). Current screening was determined by whether a subject who reported taking any of the recommended screening tests for any purposes according to guidelines current at the time, such as: annual home fecal occult blood testing or flexible

sigmoidoscopy every 5 years; or annual fecal occult blood testing plus flexible sigmoidoscopy every 5 years; or double contrast barium enema every 5 years; or colonoscopy every 10 years (Shokar et al, 2008). The Health Belief model was used to examine attitudes and beliefs about CRC screening because it gives a useful organizing framework for explaining screening behavior (Shokar et al., 2008). Medical history items included overall perceived health status, whether there was a family history of CRC in a first-degree relative, and health behaviors such as whether they had ever had an annual health examination or had previous testing for CRC (Shokar et al., 2008). Health care experience variables included whether subjects named a regular primary care physician, whether they had ever received a doctor's recommendation for a CRC screening test, and their satisfaction with their regular doctor or the previous provider (Shokar et al., 2008).

Among the 1079 eligible patients approached for the study in the second article, 133 refused and 344 agreed but could not be scheduled at a mutually convenient time, giving an overall response rate of 55.7% (Shokar et al., 2008). According to the researchers, the first 30 interviews were used for piloting purposes and 12 subsequent surveys were incomplete; this left a total of 560 surveys complete for analysis. The rate of missing responses was less than 1% for each variable with the exception of income (3%); all missing responses were excluded from analysis. The final sample was made up of 204 non-Hispanic white, 194 African-American, and 162 Hispanic patients, and almost all had health insurance (96.9%) (Shokar et al., 2008). Further, the weighted sample was identical in profile to the clinic population aged 50 or older.

The result from the second article added that African-Americans perceived fewer benefits to screening (mean scores: non- Hispanic whites, 32.82; African-Americans, 31.43; $P < .0001$);

were more fatalistic (mean scores: non-Hispanic whites, 18.27; African-Americans, 19.97; P< .0001); and had lower knowledge scores compared with non-Hispanic whites (mean scores: non-Hispanic whites, 9.87; African-Americans, 8.24; and Hispanics, 8.39; P< .0001). African-Americans group reported poorer overall health status, lower rates of previous testing and annual health exams, and receipt of a doctor recommendation for CRC screening (Shokar et al., 2008). According to 62.5% of the participants who were current with CRC screening recommended guidelines, CRC screening rates were lowest in the African-American group, with 67.5% in non-Hispanic whites, 54.3% in African- Americans (P< .001) (Shokar et al., 2008). Colonoscopy was the most prevalent test but was reported least often by African-Americans and Hispanics. Older age and non-Hispanic white race/ethnicity were associated with higher rates of current CRC screening in bivariate analyses. Of the knowledge and beliefs, fewer perceived barriers (P<.0001), less fatalistic attitudes (P < .05), and awareness of screening (P< .001) were associated with screening. Of the medical history and health care experience variables, having a regular doctor, having annual exams, having a doctor recommendation, and previous testing were all significantly associated with current CRC screening (Shokar et al., 2008). The researchers noted that African-Americans were significantly less likely to be current with screening even after controlling for socio-demographic factors (Shokar et al., 2008). This suggests that socioeconomic factors do not entirely explain racial/ethnic differences in screening. The researchers also pointed out that only significant variable in the study that associated with CRC screening in African Americans was doctor's recommendation.

The authors noted the following limitations in the study; 1. The study population was of lower socioeconomic status but predominantly insured, which affects its external validity. 2. CRC screening was self-reported and was not verified by medical record abstraction, and although

studies do suggest that there is a good correlation between self-report and actual screening (Shokar et al., 2008), there is conflicting evidence about whether the accuracy of self-report varies by socio-demographic group (Shokar et al., 2008). 3. This was a cross-sectional study so conclusions cannot be drawn about causal relationships 4. The tests done for screening cannot be differentiated from diagnosis of symptoms because patients cannot accurately differentiate the two and this may have affected the outcomes.

Strengths of the study include the recruiting of African-Americans and Hispanic patients in sufficient numbers to make comparisons across groups.

The third article identified mistrust, fear, and lack of knowledge about CRC and CRC screening as barriers to colorectal cancer screening in African Americans. Other previous studies have noted lack of physician trust among African Americans. Distrust in physicians is perceived quite negatively by some African Americans. This has ultimately lead to refusal of needed procedures such as CRC screening and, sometimes, to rejection of care (Jacobs et al., 2006). Contributing factors to this lack of trust of physicians by African Americans include a lack of interpersonal and technical competence, perceived quest for profit, and expectations of racism and experimentation during routine provision of health care (Jacobs et al., 2006). This third article also explored colorectal cancer (CRC) screening knowledge, attitudes, and barriers as a prelude to the development of culturally appropriate interventions to improve screening in African Americans (Greiner et al., 2005). The inclusion criteria of the study in the third article were: individuals (primary care patients and new patients) ≥50 years who self-identified as African American and were without obvious mental or cognitive impairment (Greiner et al., 2005). The researchers of this study used focus groups to obtain in-depth information regarding beliefs, opinion, and perceptions of CRC and CRC screening. Study staffs used a short survey at

the beginning of each session to assess CRC knowledge of focus group participants (Greiner et al., 2005). The questions asked participants to identify the recommended age at which CRC screening should start and to name or describe one or more CRC screening tests. At the end of the session, a longer, 18 question, anonymous survey assessed participant CRC knowledge and demographics.

A moderator's guide was based on previous studies of CRC and other cancer screening within African-American populations (Greiner et al., 2005). The guide was designed to explicitly assess African- American's thoughts, feelings, and perceptions of cancer in general, CRC, early detection of cancer, and CRC screening. Because the guide was developed based on prior literature, its primary conceptual framework was the Health Belief Model (HBM). Many concepts within the guide were framed around HBM key elements (perceived severity, benefits, barriers, and cues to action).

Focus group participants in the third study described how the current health care system does not meet patient care needs (Greiner et al., 2005). They described the system as a direct cause of poor utilization of cancer screening by African Americans. Costs contributed to mistrust. The organization of care and specifically managed care were blamed for a diminished focus on patient well-being. Doctors were described as being rushed by managed care and this led to omission of thorough testing for cancer. Participants explained that they often felt that the health care system had suspect motives and that it was up to patients to advocate for themselves. Some participants explained that it was important for patients to consider getting a second opinion on important medical issues.

Many participants reported that their friends, neighbors, and relatives did not take proactive approaches toward early cancer detection (Greiner et al., 2005). Some stated that members of the African-American community in general often adopt a passive role and avoid seeking medical care out of fear and denial that something might be wrong. Participants expressed the belief that if one looks and/or feels okay, one must be okay. Fear was described as a major factor influencing use of services and follow-up with physicians (Greiner et al., 2005). Most participants reported that they had many fears with regard to cancer and that they could understand why many patients shy away from screening tests that might reveal a very grim prognosis (Greiner et al., 2005). Other participants reported fear of the embarrassing or uncomfortable nature of CRC tests. They described these fears as a significant influence on overall willingness to participate in screening, especially when they might have to follow up or initiate these embarrassing processes.

The third article also added that participants in the study uniformly described a lack of CRC knowledge and voiced a desire for more information on this. They asked many questions that clearly revealed their knowledge deficits and their strong interest in gaining information that could be used to assess their own risk for CRC and facilitate CRC screening (Greiner et al., 2005). They stated that knowledge of CRC and CRC screening was very low among their friends, relatives, and self-defined communities. A large number of participants specifically described CRC knowledge and awareness as solutions to the problem of low CRC screening rates.

The outcome of these studies justifies the need for focused and targeted efforts to address barriers to CRC screening in African Americans. CRC screening interventions need to be

tailored to meet individuals' specific needs, or targeted to meet the needs of communities or populations.

The authors of this study noted some limitations in the study. For example, participants were recruited from a single site, and the findings may lack generalizability beyond the Mid-west and with non-urban-dwelling African Americans (Greiner et al., 2005). In addition, the study sample was exclusively low income. The focus groups were not stratified and it is possible that this may have hindered open honest communication among participants. Another limitation was the failure to capture only participants over the age of 50 years. This may have artificially created a low CRC knowledge level among the participants (Greiner et al., 2005). The consistency of low knowledge and thematic findings between groups with variable numbers of participants <50 years suggests that this was not a major problem.

The next three articles focus on interventions aim to improve CRC screening among African Americans.

The fourth article was a pilot-tested physician-directed study conducted by Khankari et al aimed at improving rates of recommendation and patient colorectal cancer screening completion at a federally qualified health center serving low-income, African-American and Hispanic patients (Khankari et al., 2007). Colonoscopy was specifically targeted as it has been perceived as a "practice standard" by many physicians, and its recommended testing interval would extend the period of compliance for these patients who face persistent social and economic barriers often impeding the routine use of primary health care services. Inclusion criteria for this study in the fourth article include; patients over the age of 50 years who received care at the specified federally qualified health centers (FQHC) between January 1, 2002 and January 28, 2005 and

had 3 or more visits to the clinic during this time period (Khankari et al., 2007). Beginning in early 2005, a physician-directed continuous quality improvement (CQI) strategy was implemented at one FQHC site. The CQI strategy and the physician communication training component were adapted from a previously successful colorectal cancer screening intervention implemented among Veterans. The strategy involved; 1) manually tracking screening-eligible patients, 2) mailing patients a physician letter and brochure before medical visits, 3) health literacy training to help physicians improve their communication with patients, and 4) establishing a "feedback loop" to routinely monitor patient compliance.

Chart review was completed to determine whether patients received a physician recommendation for screening, and completion of any colorectal cancer screening test 12 months after intervention. Physicians recorded patients' qualitative reasons for noncompliance and a preliminary cost-effectiveness analysis for screening promotion was also conducted (Khankari et al., 2007).

The baseline screening rate from the study in the fourth article reviewed was 11.5%, with 31.6% of patients having received a recommendation from their physician. At 1-year follow-up, rates of screening completion had increased to 27.9 percent ($p < .001$), and physician recommendation had increased to 92.9% ($p < .001$) (Khankari et al., 2007). Common reasons for nonadherence included patient readiness (60.7%), competing health problems (11.9%), and fear or anxiety concerning the procedure (8.3%).

The authors also pointed out some limitations in the study. First, screening-eligible adults were identified by age only; information on patients with an identified family history of colon cancer or polyps was not available without a much larger scale manual chart review (Khankari et al.,

2007). Second, there is a remote chance that patients sought or received screening information or services elsewhere, which could not be captured in the analyses. However, the inclusion of patients who were more frequent users of care at the FQHC, and their limited economic resources suggest the patients included in the study are not as likely to be dual users of a preventive care service like colonoscopy or FOBT (Khankari et al., 2007). Third, several other patient-level characteristics have been previously proposed as influencing screening adherence, but were not captured in the current research activities. Finally, this was a pilot test using a single-group, pretest–posttest design only. The findings do not represent definitive evidence of the intervention's efficacy, as the design itself cannot account for potential bias from patient selection, maturation, or other unmeasured, external influences (e.g., competing screening promotion efforts) (Khankari et al., 2007). A proper evaluation of the strategy within the context of a controlled clinical trial at multiple FQHCs will be necessary in the future.

The fifth article examined community- based intervention aimed to improve CRC screening. The study's objective was to improve colorectal cancer (CRC) screening among low-income women in subsidized housing communities in 11 cities in North and South Carolina who were traditionally underserved by cancer control efforts (Katz, et al., 2007). In this study, the American Cancer Society's (ACS) screening guidelines were used in designing educational materials. One ACS coordinator was hired and trained to serve as a liaison to the research team. The ACS coordinator trained ACS area coordinators who in turn trained the local ACS project volunteers (n = 179) throughout North and South Carolina (Katz, et al., 2007). Social learning theory (SLT) and the health belief model (HBM) and the trans-theoretical model (TTM) learning theories were used in the design of the intervention. All intervention components were delivered by trained ACS volunteers. Out-reach strategies (educational classes, direct mailings, brochures,

media campaigns by community newspapers and local radio stations) focused on providing messages to the public and in-reach strategies (waiting-room posters, monthly examination-room messages) were directed to healthcare providers and clinics (Katz, et al., 2007).

A total of 2098 surveys were completed. Seventy-eight percent of the respondents were African American, 62% were 65+ years, and 4% were married. At baseline, the rate of CRC screening within guidelines was 49.3% and physician recommendation was the strongest predictor (odds ratio [OR] = 21.9) of being within guidelines (Katz, et al., 2007).There was an increase in positive beliefs about CRC screening (P =.010) and in the intention to complete CRC screening in the next 12 months (P =.053) after the intervention. The odds of being within CRC screening guidelines for women living in a city that had received the intervention were not significantly different from women living in a city that had not received the intervention (P =.496) (Katz, et al., 2007).

This study has several strengths. It included a medically underserved population of low-income women and was modeled after an evidence-based intervention that improved breast and cervical cancer screening rates (Katz, et al., 2007). Women from the community assisted with the design of the educational materials and helped plan and implement the intervention. The study also included a region that did not receive the intervention so that adjustment for any secular trends in CRC screening could be controlled (Katz, et al., 2007). The varying CRC screening rates by city may be due to several reasons (medical practices, community culture, population access to screening services, etc) that were not necessarily captured in the study. This is one reason each community served as its own control in the study design. Finally, this study represents diffusion and dissemination of an evidence-based intervention by a cancer-focused volunteer organization (Katz, et al., 2007).

The authors did point out some limitations which include assessment of CRC screening based on women's self-report, which has been shown to vary in accuracy compared with medical records (Katz, et al., 2007). The women included in this study did not represent all women living in low-income housing in the US. Volunteers have limited ability to penetrate communities unless directed to specific community residents to educate, and there was also a lack of control of the intervention delivery as well as limited ability to track the fidelity of the intervention (Katz, et al., 2007).

The last article reviewed was an experimental/control study. The article examined the effect of a tailored intervention on CRC screening in African Americans. Myers (2007) and his team embarked on a task to determine whether targeted and tailored interventions can increase screening use especially in African Americans. The inclusion criteria for the study were; patients ages 50 to 74 years, had no prior diagnosis of colorectal neoplasia or inflammatory bowel disease, had had at least 1 visit to Jefferson Family Medicine Associates (JFMA) within the previous 2 years, had complete contact information (i.e., address and telephone number) available, and had not undergone recent CRC screening. A total of 1,546 primary care practice patients completed a baseline telephone survey and were randomized to 4 study groups: control (387 patients), Standard Intervention (SI) (387 patients), Tailored Intervention (TI) (386 patients), or Tailored Intervention plus Phone (TIP) (386 patients) (Myers et al., 2007). The control group received usual care throughout the study. The SI group received a targeted intervention by mail (i.e., screening invitation letter, informational booklet, stool blood test, and reminder letter). The TI group received the targeted intervention with tailored ‘‘message pages.’’ The TIP group received the targeted intervention, tailored message pages, and a telephone

reminder. Intervention group contacts were repeated 1 year later (Myers et al., 2007). Screening was assessed 24 months after randomization.

Screening rates in study groups were 33% in the control group, 46% in the SI group, 44% in the TI group, and 48% in the TIP group (Myers et al., 2007). Screening was found to be significantly higher in all 3 intervention groups compared with the control group (odds ratio [OR] of 1.7 [95% confidence interval (95% CI), 1.3–2.5], OR of 1.6 [95% CI, 1.2–2.1], and OR of 1.9 [95% CI, 1.4–2.6], respectively), but did not vary significantly across intervention groups (Myers et al., 2007).

There were some limitations noted by the authors; the study was conducted in one urban primary care practice, thereby limiting possible generalizability. In addition, the actual delivery of telephone reminders was incomplete. Individuals who did not receive the telephone reminders may have differed from those who did receive the reminders. These reminders were also brief and focused on encouraging screening use, rather than on the tailored messages (Myers et al., 2007). The impact of telephone contacts designed to amplify tailored messages was not known. Finally, individual characteristics and the screening practices of participant providers may have differed across study groups and therefore could have affected screening rates differentially. The research team relied on participant random assignment to control for this possible confounder (Myers et al., 2007).

Discussion

Colorectal cancer (CRC) continues to affect African Americans disproportionately. Despite medical advances and widely accepted screening recommendations, African Americans are less likely to get appropriate CRC screening, and as a result, are more likely to die from colorectal cancer than their white counterparts. The comprehensive literature review identified mistrust, fear, lack of knowledge about CRC and CRC screening, and lack of access to health care (lack of a primary care provider to recommend screening) as significant barriers to CRC screening among African Americans. In the second article, African-Americans were significantly less likely to be current with screening even after controlling for socio-demographic factors (Shokar et al., 2008). This suggests that socioeconomic factors do not entirely explain racial/ethnic differences in screening. The study also suggests that directly targeting patient attitudes may be less important overall in addressing disparities in CRC screening.

The review also highlighted that increased provider education and training in communication skills, out-reach strategies focused on providing messages to the public and in-reach strategies directed to healthcare providers and clinics (Katz, et al., 2007) play an important role in increasing CRC screening rates in African Americans. These outcomes support the idea that increased knowledge and awareness are important determining factors in African Americans CRC screening rates.

Conclusion

The morbidity and mortality rate of colorectal cancer among African-Americans will continue to go up unless the barriers associated with CRC screening are identified and appropriate intervention measures are applied to overcome these barriers. Research suggests that these barriers can be overcome, but requires the active participation of primary care providers including public health leaders. Increasing provider education and training in communication skill to improve physician-patient relationship was found to be very significant in tackling some of the barriers seen in African Americans. Lack of doctors' recommendations and knowledge about CRC and CRC screening are the two significant barriers that can be targeted interventions to increase colorectal cancer screening in African American.

The government has made some recent progress in policies and legislation related to colorectal cancer screening. On March 23, 2010, Congress passed and the president signed health care reform legislation, which included approximately 160 provisions that will meaningfully improve the health care system for cancer patients (American Cancer Society, 2011). Many of those provisions will give greater access to colorectal cancer screening. For example: All new private health plans are required to cover colorectal cancer screening tests with a US Preventive Services Task Force (USPSTF) rating of "A" or "B" without any out-of-pocket costs to patients. In the Medicare program, preventive services, such as colonoscopies, will have no out-of-pocket costs and are exempt from deductibles. The deductible will be waived for colorectal cancer screening tests even when polyps are detected and removed. A public health investment fund is created to expand and sustain national investment in prevention and public health programs, including health screenings.

Future public health leaders have a role to reduce morbidity and aid in decreasing health disparities. The rise of CRC morbidity and mortality due to lack of routine screening among African Americans is an example of the inability of providers to identify and address the needs of this vulnerable population. Public health leaders also have a duty to understand all barriers that contribute to the low colorectal cancer screening in order to develop better intervention measures to increase routine screening among African-Americans. One of the most common cited barriers in all the articles reviewed was lack of knowledge about CRC and CRC screening; the public health and public health leadership need to do a better job in educating, empowering, and enhancing interpersonal communications and interaction needed to properly inform African Americans about their risk and need for CRC screening.

Cultural competency is a set of leadership skills that can promote cultural awareness which can ultimately bridge the gap of mistrust of African Americans in providers which was considered as a barrier in CRC screening uptake in this community. Public health interventions aimed at increasing physician awareness will have a big impact in CRC screening. Public health leadership can also encourage the need for collaborative research involving the community and health care providers in addressing CRC screening uptake in African-American community.

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